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Ausserer, et al.

Reply to Office Action of October 28, 2004

REMARKS/ARGUMENTS

When the pending Office Action was issued, claims 1-54 were pending. All of those claims were rejected. In this Amendment and Response, claims 1-31, 48, 50, and 52-54 are amended, and claims 32-47 are cancelled. Support for the amendments can be found throughout the specification.

I. Specification

The errors in the priority information have been corrected.

II. Claim Objections

Amended Claim 8 is no longer identical to claim 2.

Applicants must disagree with the Examiner's objection to the term "negative pressure." There are two common methods of expressing a pressure measurement: either as an absolute pressure, where the magnitude of the pressure is measured relative to an absolute vacuum, or as a gauge pressure, where the magnitude of the pressure is measured relative to atmospheric pressure. Excerpts from a two technical handbooks are included in this communication to support this proposition. Applicants assert that, for the reasons the Examiner pointed out in the Office Action, that one skilled in the art would recognize that a "negative pressure" must be a gauge pressure. The only reason Applicants are contesting this issue is that the term "negative pressure" is used throughout the specification, and Applicants would prefer to keep the terminology used in the claims and in the specification as consistent as possible.

Claims 19-31 have been amended so that they depend on claim 18, and claims 32-34 have been cancelled.

The objections to claims 40 and 42 are moot, since those claims have been cancelled.

In claim 50, the word "T" has been replaced with the word "in".

Applicants would like to point out that the terms "conduit" and "channel" seemed to be used interchangeably in the original set of claims. For consistency, the claims have been amended so that only the term "channel" is used.

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III. Claim Rejections under 35 USC § 102

Claims 18, 26, 27, 41, and 43-47 were rejected under 35 USC § 102(e) as allegedly being anticipated by US Patent No. 6,207,031 ("Adourian"). Adourian does not anticipate any of the pending claims after the amendments set forth in this Amendment and Response.

As an initial matter, Applicants must point out that after the amendments set forth in this Amendment and Response, there is only one remaining independent claim: claim 1. Thus claims 18, 26, and 27 now depend from claim 1. Claims 41 and 43-47 have been cancelled.

To anticipate a claim, a reference must teach every element of that claim. MPEP 2131. The amendments to claim 1 introduce elements into claims 18, 26, and 27 – via their dependence on claim 1 – that are not disclosed in Adourian. Claim 1 now requires that the system provided in the method comprise an injection channel interposed between the sample loading channel and the separation channel, and that the reagent and the sample be mixed within the sample loading channel. This terminology can be understood by referring to the discussion of the embodiment of Figure 2A, which runs from pg. 6 line 17 through pg. 7 line 20. Adourian does not appear to disclose a structure containing all of these elements, so Adourian cannot anticipate claims 18, 26, and 27.

Claims 35, 36, and 40 were rejected under 35 USC § 102(b) as allegedly being anticipated by US Patent No. 6,010,607 ("Ramsey"). All of those claims have been cancelled, so this rejection is moot.

IV. Claim Rejections under 35 USC § 103

Claims 1-10, 12-14, 17, 28-34, 48, 49, and 52-54 were rejected as allegedly being unpatentable over the combination of Adourian and US Patent No. 6,375,817 ("Taylor"). Of these rejected claims, claims 32-34 have been cancelled. In light of the amendments to claim 1, the only remaining independent claim, all of the remaining claims are patentable over the combination of Adourian and Taylor. Neither Taylor nor Adourian appear to disclose or suggest the claim 1 elements of injecting a sample from a sample loading channel, through an injection channel, into a separation channel, while mixing the sample with a reagent in the sample loading channel. Instead, both Adourian and Taylor appear to only disclose the concept of injecting a

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sample directly from a sample loading channel into a separation channel. As discussed in the pending Application, the presence of the intermediate injection channel dramatically alters the operation of a device. For example, different driving forces can be used to propel fluid through the sample loading channel and the injection channel. See e.g. Application pg 14 lines 4-6 and pg. 15 lines 10-17. This mode of operation could not be carried out in the devices disclosed in Adourian and Taylor. Therefore Applicants assert that the amendments to claim 1 have eliminated the basis for the obviousness rejection of claims 1-10, 12-14, 17, 28-31, 48, 49, and 52-54.

Claim 11 was also rejected as allegedly being unpatentable over the combination of Adourian, Taylor, and US Patent No. 5,976,336 ("Dubrow"). Although Dubrow may disclose an intermediate channel segment that could conceivably correspond to an injection channel, none of Dubrow, Adourian, nor Taylor disclose or suggest the concept of mixing a reagent and a sample within the sample loading channel, and then flowing that mixture into the injection channel. Changing the location of the mixing is not a trivial matter, since the flow conditions, e.g. flow rate and driving force, can be different in the sample loading channel and the injection channel. So again the device covered by claim 1 offers the advantage of increased flexibility over any possible device constructed from the combination of the disclosures of Adourian, Taylor, and Dubrow. Therefore Applicants assert that claim 11 cannot be unpatentable over that combination.

Claims 15 and 16 were rejected as allegedly being unpatentable over the combination of Adourian, Taylor, and Ramsey. The premise for this rejection is that Adourian and Taylor render claim 1 unpatentable, and that Ramsey suggests the additional limitations of claims 15 and 16. Since Applicants assert that amended claim 1 is patentable over the combination of Adourian and Taylor, Applicants also assert that the premise underlying the rejection of claims 15 and 16 no longer applies. Therefore Applicants assert that claims 15 and 16 are now in condition for allowance.

Claims 19-25 were rejected as allegedly being unpatentable over the combination of Adourian, Taylor, and US Patent No. 4,486,311 ("Nakajima"). The rejection of these claims appears to be based on the premise that Adourian anticipates claim 18, and that Nakajima suggests the additional limitations of claims 19-25. As discussed above, Applicants assert that

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this premise no longer applies. Therefore Applicants assert that claims 19-25 are now in condition for allowance.

Claims 37-39 were rejected as allegedly being unpatentable over the combination of Ramsey and Taylor. Those claims have been cancelled, so this rejection is now moot.

Claims 42 was rejected as allegedly being unpatentable over the combination of Ramsey, Adourian, and Taylor. That claims has been cancelled, so this rejection is now moot.

Claims 50 and 51 were rejected as allegedly being unpatentable over the combination of Adourian, Taylor, and Nakajima. This rejection is based on the premise that the combination of Adourian and Taylor render claim 48 unpatentable, and that Nakajima suggests the additional limitations in claims 50 and 51. As before, Appicants assert that the premise underlying this rejection is no longer valid in light of the amendments made to claim 1. Therefore Applicants assert that claims 50 and 51 are now in condition for allowance.

Conclusion

For the foregoing reasons, Applicant believes all the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned attorney.

Respectfully submitted,



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